



PPM-DOM project

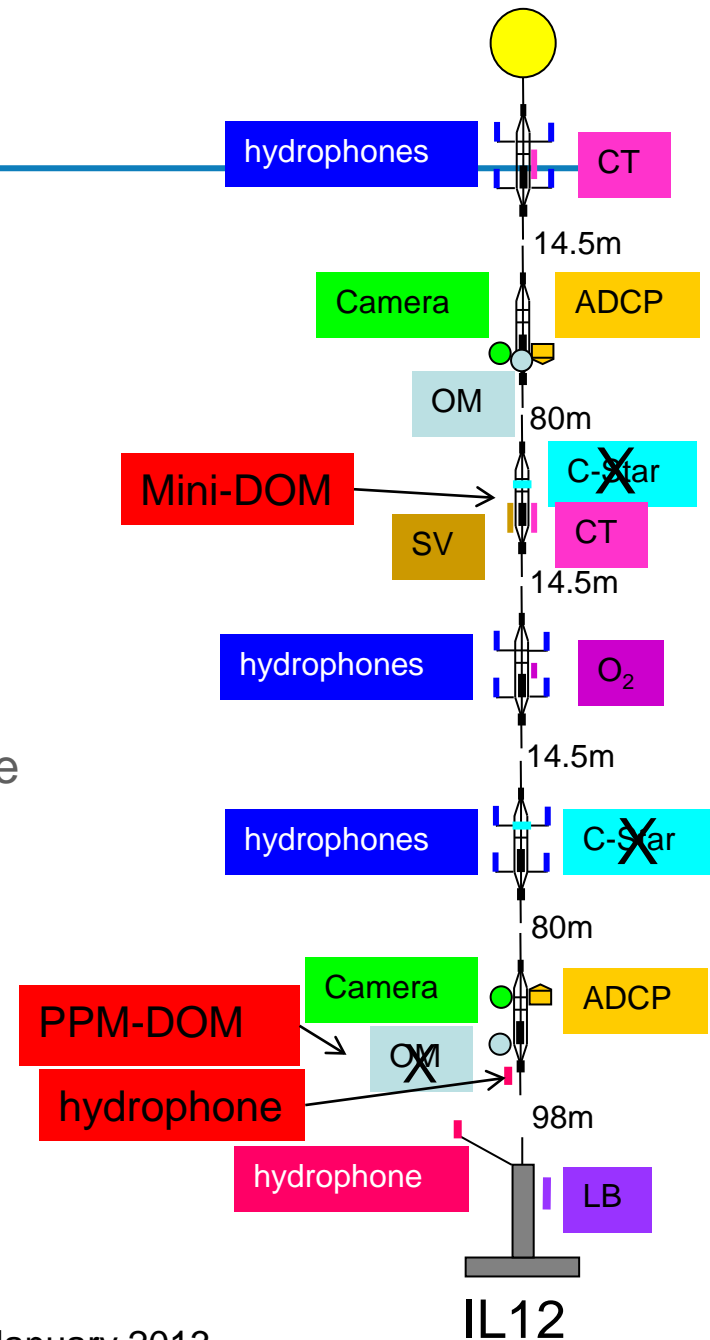


P. Lamare (CPPM) for PPM-DOM team



Context

- Project launched to validate in short time scale a DOM in the sea using an existing infrastructure.
- Choice of Antares IL quite natural as infrastructure support (line and detector).





PPM-DOM operation

PPM-DOM operation almost independent from Antares operation

Offshore:

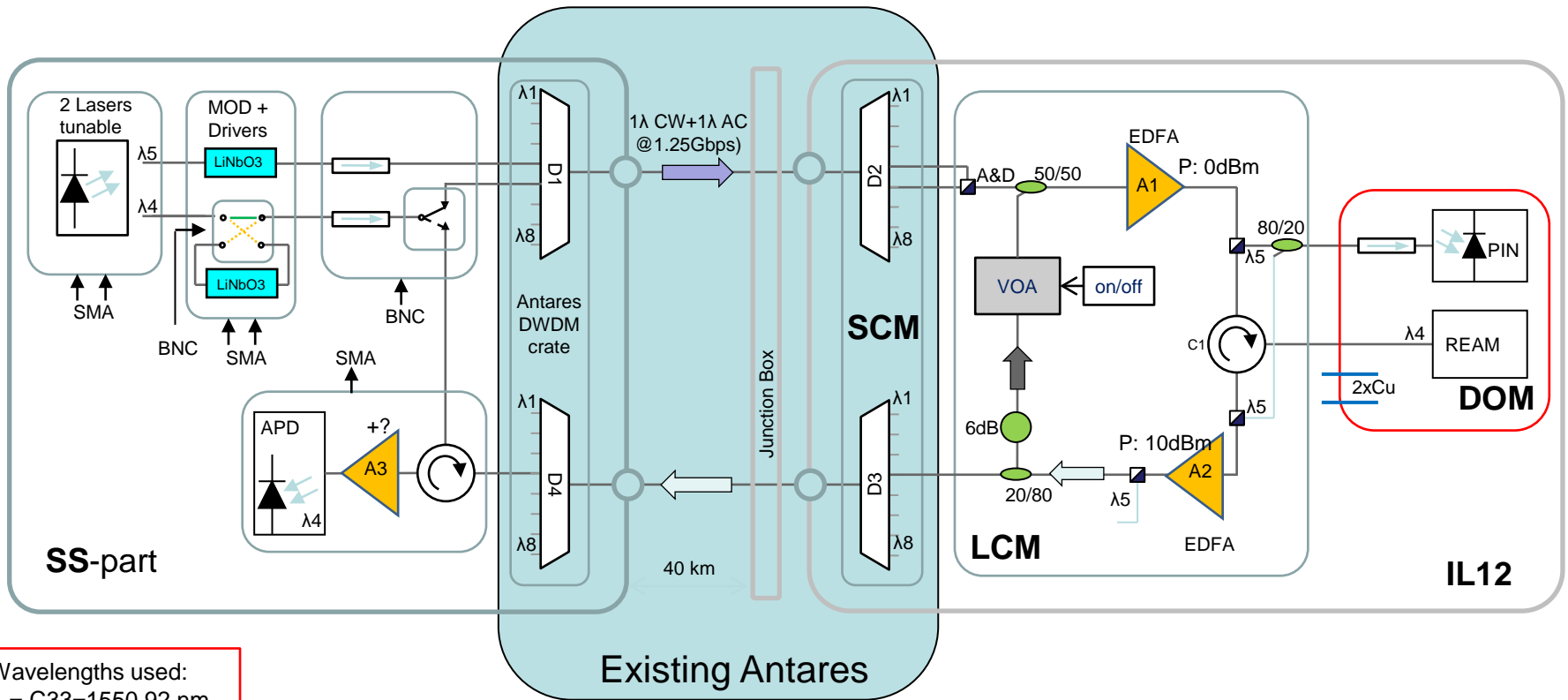
- DOM and optics powered with a dedicated SPM output
- Dedicated fibres and wavelengths from DOM to shore
- Only timing loop calibration device (VOA) controlled through Antares

On shore:

- Fibres directly routed from Mux/DeMux to PPM-DOM optical shore station
- DAQ system totally independent
- Dedicated clock system with its own GPS (but same antenna)



Optical scheme



2 separate λ for data & SC instead of 1 with modulated signal in KM3NeT to avoid interference with Antares
400 GHz DWDM grid instead of 50 GHz



Project development

- Start of the project: November 2011
- Definition: February 2012
- 1st DAQ integration test: June 2012
- 2nd DAQ integration test: July 2012
- DOM assembly: August 2012
- Integration in IL12: September 2012
- DOM ready for deployment: December 2012
- DOM ReX: December 2012

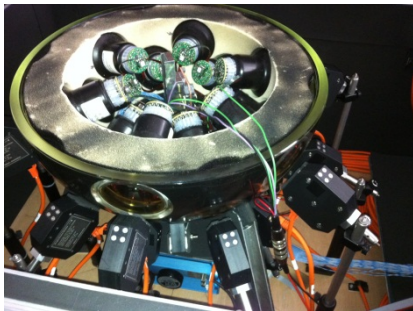
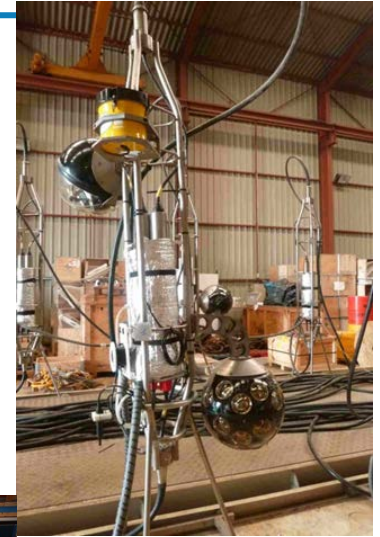
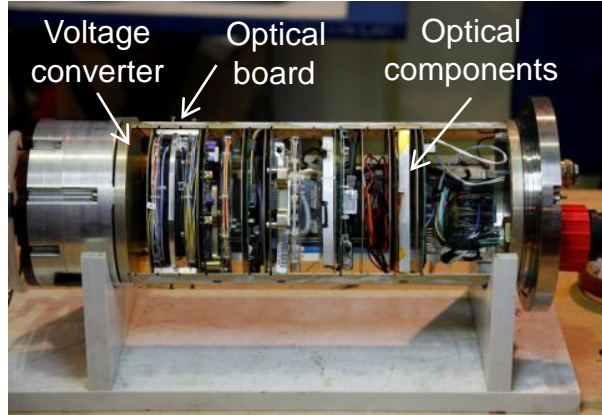
More details in other talks:

DOM ReX: Jan-Willem

Calibration test in CPPM: Konstantin



Some pictures



PPM-DOM in Antares

KM3NeT meeting, CPPM, 29 January 2013
DOM support



Other pictures...





Commitments

Item	components	cost in k€	Commitments
DOM	Glass sphere, mechanics, BEOC	5	Nikhef
	PMTs	15,5	Nikhef
	PMTs base	3,1	Nikhef
	CLB with mini module	1,8	Saclay
	power board	0,2	Demokritos
	acouboard	0,3	INFN
	Octupuss boards		Nikhef
	tiltmeter	0,085	Demokritos
	Compass	0,245	Demokritos
	nano beacon	0,135	IFIC
	piezo + ampli	0,99	Erlangen
	Optics (REAM...)	2,5	Nikhef
	BEOC connector	1,75	CPPM
	Hydrophone	sensor and cable	1,2
support		0,9	INFN
Shore station	Lasers	7,9	CPPM
	modulators	23,35	CPPM
	APD receiver	6,95	CPPM
	Optical components	5	Nikhef
	Optical amplifiers	2,5	CPPM
	GPS	2,7	CPPM
	DAQ crate	6	Saclay
	PCs	2	Saclay
Integration in IL12	Installation at IMP	1	CPPM
	Optical amplifiers	5	CPPM
	Mechanical parts	1,5	CPPM
Logistics	connector	1,65	CPPM
	DOM transportation	2,5	Nikhef
Sea operation	DOM pressure test	0,55	CPPM
	IL11 recovery	30	CPPM
	IL12 deployment	30	Nikhef
	IL12 connection	30	Antares

Total without sea op.: 102 k€
Total with sea op.: 192 k€



Some issues

- Bubbles in the gel
- Timing loop not working
- New APD receiver to be implemented
- New software to be integrated after IL connection (reduction of data to store)
- No data filter implemented: data taking by sampling or candidate to implement it?
- No monitoring: candidate to implement it?
- Operation at IMP (remote operation limited): people needed
- Data analysis: more physicist needed



Summary

- Project developed smoothly due to good interaction and motivation of people
- DOM fully operational
- Waiting for line deployment (Mid-February?)
- Man power needed for data analysis, operation and shifts

The first real KM3NeT project realized

Activity can be followed at: [ANTARES_KM3NeT](#) elog